



# Installation Manual

## TWM Performance

### Short Shift Kit

### 2006 and up Mitsubishi Eclipse GT 6 Cylinder

Please Note: It is preferable to park on a flat surface, as you will have to engage and disengage the hand brake and shift from gears to neutral. If you cannot do so and are obliged to install the short shifter on a slightly inclined surface, place wooden blocks in front and behind the wheels to prevent the car from moving while you're working. Please read this manual completely before beginning to work on your car.

**Estimated Installation Time:** 120 minutes

**Tools required:**

- Flat head screw drivers (small and large)
- Philips head screw driver
- Hammer
- Flash light or shop light
- Needle nose pliers
- Rotary cutting tool and/or hacksaw
- Power Drill
- Metric socket set (with 8mm, 9mm, 12mm, 14mm sockets) and ratchet
- File and X-Acto knife
- All purpose grease (white Lithium based grease preferred)

**What you get in this kit:**



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**1.** Unclip the snap at the top of the shift boot and push the shift boot down over the reverse lock. Unscrew the shift knob by rotating it counter-clockwise and put in a safe place.



**2.** Inside the rear center console, pop up the cover at the bottom of the storage compartment using a small flat head screwdriver and disconnect wires and clips to be able to completely remove the cover.



**3.** Pop the upper center console off by pulling on it with both hands on each side. There are clips on both sides and at the top. Disconnect the wire behind it and put it in a safe place. Use caution during this step.



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**4.** By placing your hands beneath both sides of the top of this part, pull on it and disconnect the wires behind it. Put this portion in a safe place as well.



**5.** Starting from the armrest, unclip the center console covering the handbrake and shifter mechanism, making your way toward the front until it is completely free.

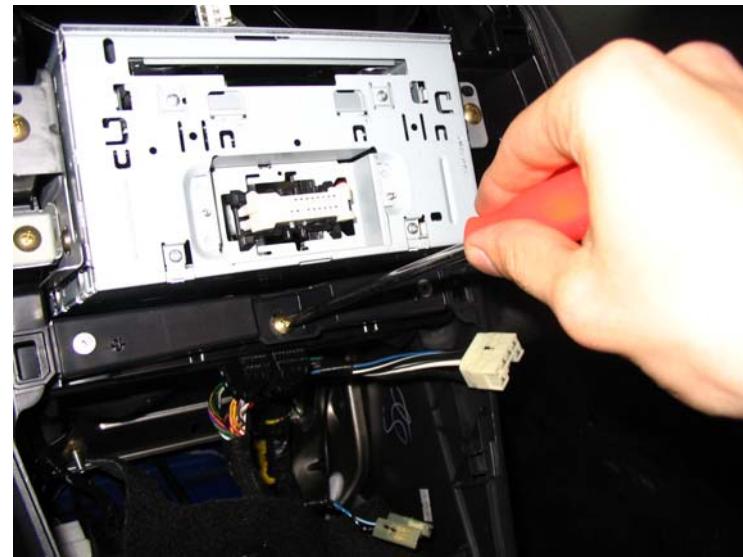


**6.** Turn this portion of the console on it's side to gain access to the wires beneath it. Disconnect the 12V plug wire and the heated seats switches.



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7. You will now have access to 8 screws. Remove them using a Philips screwdriver. There are 3 screws under the armrest, 4 screws in front of the shifter and 1 screw beneath the upper center console you removed in step 3.



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**8.** The front of the main console is held in place by plastic clips (one on each side). To remove them, pop the center cap out with a small flat head screwdriver and pull on it. Lift the rear end of the main console to be able to disconnect the heated seats controls and 12V plug if not already disconnected. Lift the front end of the main console and pull it out of the car and put it in a safe place. Use caution not to scratch the interior of the car as you do this. This step is simplified with the handbrake down and the front seats tilted backward.



**9.** Remove the clip holding the carpet to the frame on the passenger side with a flat head screwdriver. This will create more space to work and will allow removal of the black plastic cover in the next step.



**10.** You must now remove the black plastic cover that goes over the entire shifter assembly. Using a Philips head screwdriver, remove all 4 screws, 2 on each side and set the plastic part aside. It is not necessary to remove the clips from the cover, it can simply be set aside, out of the way on the drivers side of the console. This will allow enough room to work to install the shifter.



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**11.** Pictured Left : The black plastic cover is placed out of the way on the drivers side of the center console.



**12.** Working at the bottom of the shifter itself, spread the steel wire clip apart with your fingers or needle nose pliers and push the cable down. This will separate the shifter from the shifter cable. Be sure not to lose the steel wire clip as it needs to be used for re-installation.

Once the shifter and plastic cup are slid out of the shifter cable housing, the steel wire clip can be left in place on the shifter cable to be certain not to misplace it.



**13.** Place the special alignment tool provided with the kit on to the reverse lock with the slot facing up, and the smaller hole facing the rear of the car. The larger hole in the alignment tool should be facing forward, line it up with the existing hole in the reverse lock. Be sure it is lined up with the existing hole by looking through the larger hole in the front of the alignment tool, you should see a spring pin through the existing hole in the reverse lock.



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**14.** Insert the spring pin punch through the larger hole in the alignment tool and through the existing large hole in the reverse lock. The spring pin punch tool needs to be lined up so that the spring pin on the shifter shaft slides in to it. In order to do so, apply light pressure on the spring pin punch while moving the reverse lock up and down a little. You will feel the spring pin punch slide over the spring pin. It is very important that the spring pin punch goes through the alignment tool, through the existing hole in the reverse lock, and over the existing spring pin on the shifter which holds the spring for the reverse lock. This will ensure that everything is lined up for the reverse lock removal.



**15.** This step is more easily accomplished with the help of an assistant. One person should operate the power drill while the other holds the shifter shaft, alignment tool, and spring pin punch in place. With the alignment tool and spring pin tool in place, use a power drill and the 1/8 inch drill bit provided with the short shifter to drill an access hole in the reverse lock through the smaller hole in the alignment tool. This hole will line up with the spring pin in the shifter and allow for removal of the spring pin. Do not apply a great deal of force while drilling, just enough to drill through the plastic reverse lock.



**16. READ THIS STEP COMPLETELY BEFORE PROCEEDING.** Remove the spring pin which holds the spring in the reverse lock from the shifter. In order to do so, insert the 7/64 inch punch provided with the short shifter through the hole in the reverse lock you just drilled in the previous step. Line up the punch with the hole in the spring pin and tilt the shifter all the way forward until it stops. Be certain that the shifter cable is NOT connected to the base of the shifter during this step, it should have been disconnected in step 12. With an assistant holding the shifter at its forward most point, use a hammer and tap the spring pin out of the shifter a little at a time.



**16. Continued...**

The pin will come out from the opposite side through the larger hole in the reverse lock. Be certain it is lined up and does not contact the opposite side of the reverse lock on the way out. Once this pin is removed, the spring will want to eject itself from the reverse lock, be sure not to lose the spring as it will be re-used later when the reverse lock is re-installed.



**17.** Slide the punch out of the shifter and remove the spring from the reverse lock.



**18.** Use the 7/64 punch and a hammer to drive out the lower spring pin on the reverse lock, again holding the shifter at its forward most point.



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**19.** With both spring pins removed, the reverse lock can be slid off of the stock shifter, note it's orientation for re-installation later and put it in a safe place.



**20.** In order to remove the shifter, the 2 push clips on the passenger side of the shifter assembly holding the two pins must be removed or cut with a rotary tool or Dremel. If you do not have access to rotary tool, use a sharp flat head screwdriver and a hammer and work your way around the push nut to remove it. New push nuts are provided in the kit if they are broken or cut during removal.

The easiest way to remove the clips is to slice them with a rotary cutting tool, then to slide them off with a flat head screwdriver.

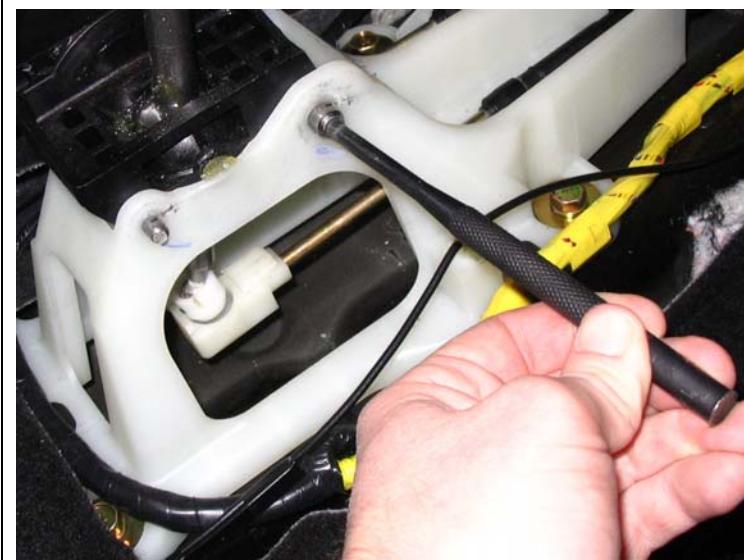
Both methods are pictured to the left. The first image shows removal with a hammer and sharp flat head screwdriver, while the next two images show removal with a Dremel tool by slicing the clips and sliding them off with a screwdriver. Be sure to wrap shop towels or rags around the shift assembly to protect the interior from any debris while cutting.

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**20 Continued.**

**21.** Disconnect the shifter cable which controls side to side motion from the triangular plastic side arm. This can be achieved simply by prying with a flat head screwdriver to slide it off the steel pin on the triangular arm.



**22.** With the 2 clips removed and side shifter cable disconnected, push the two pins out of the assembly using a hammer and a small punch. Do not use the 7/64" punch provided with the kit as it is too small in diameter. Use a sturdy larger punch or screwdriver instead.





**23.** The shifter can now be pulled up and out of the shift assembly. Pay close attention to how the spring is installed on the side arm as you will have to re-install it later.



**24.** Inspect the stock shifter and take note how it is installed in the plastic upper assembly for re-installation later. Pull off the white base cap with the o-ring (not the small pivot cup at the bottom of the shifter but the white part that the shifter pivots in) and remove the shifter from the assembly.



**25.** Remove the small plastic cup from the stock shifter. To do so, hang the stock shifter on the Cup Remover Tool supplied with the kit on a vice with the jaws open about  $1\frac{1}{2}$  inches as pictured to the left. Be sure the stock shifter is inserted completely in to the slot in the cup remover tool. Ask an assistant to hold the stock shifter to avoid it falling to the ground when the cup is separated from it. Use a punch or screwdriver and a hammer to punch the stock shifter out of the plastic cup. Do not use the punch supplied with the kit as it is too small in diameter, instead use a large punch or Philips head screwdriver.



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**26.** Grease the small ball on the TWM short shifter as shown at left and press the cup you removed in the previous step on to the TWM short shifter.



**27.** Grease the main pivot ball on the TWM short shifter. Re-assemble the upper portion of the assembly with the TWM short shifter in place. Set aside and move on to the shift assembly modification.



**28.** Now the shift assembly must be removed from the car to be modified. Begin by detaching the shift cables from the shift assembly by pulling up on them. Unclip all wires from the plastic shift assembly in order to remove it. For most of the wires clipped to the assembly, you can simply cut the electrical tape that secures them to the clips on the assembly. The rest of the clips can be pulled up to disconnect from the assembly.



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**29.** Using a ratchet with an extension and a 12 mm socket, unbolt the four bolts securing the assembly to the floor pan.



**30.** Remove the plastic shift assembly from the car.



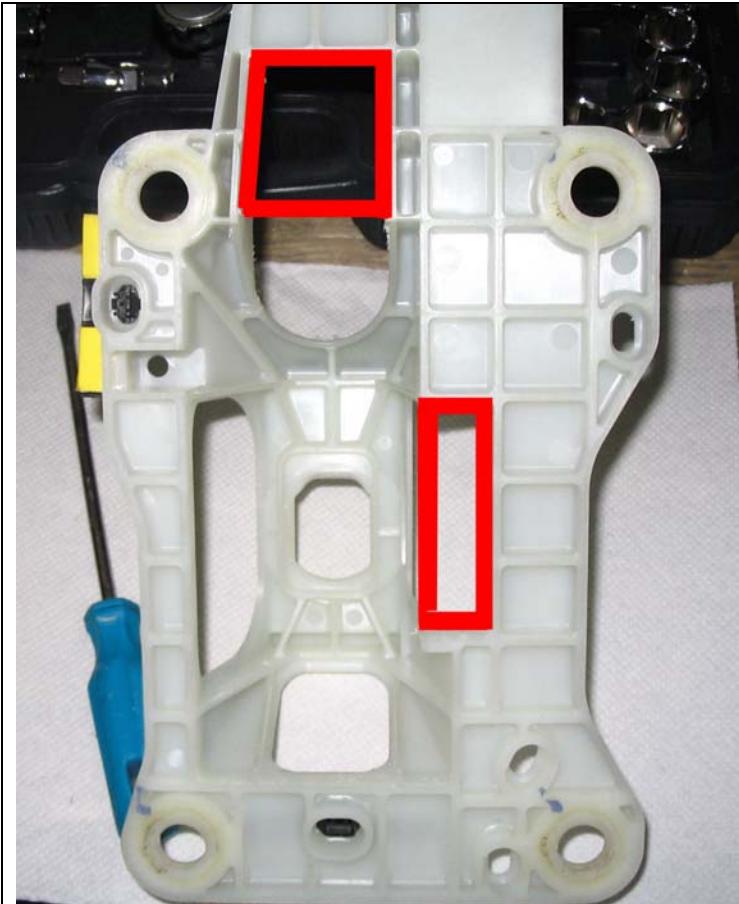
**31.** Place the shift assembly in a vise to hold it securely upright. In order to make room for the longer portion below the pivot point on the TWM short shifter the shift assembly needs to be modified.

Use a Dremel tool or any rotary cutting tool to remove the portions of the assembly highlighted in the picture to the left on the next page. We recommend using a Dremel tool with a cutting bit as pictured to the left, it works extremely well for cutting through plastic.

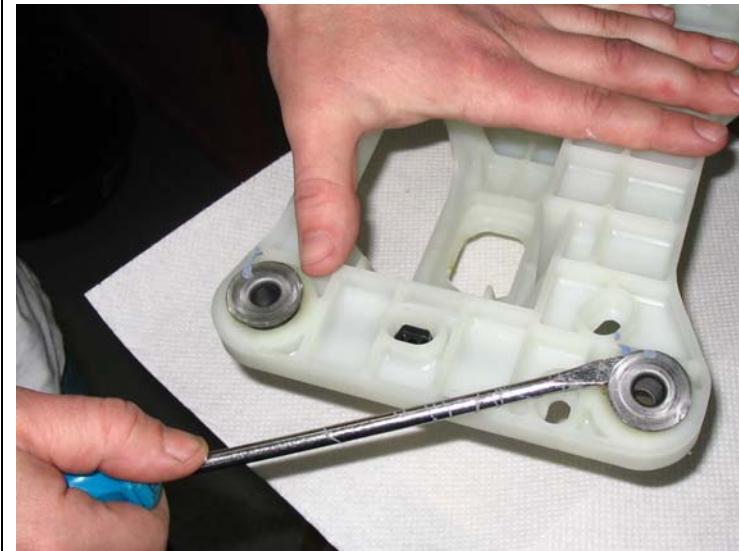
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**31. Continued.** The picture to the left shows the modified assembly with the plastic portions removed. Use a file or X-Acto knife to smooth out the edges once the plastic assembly is cut.

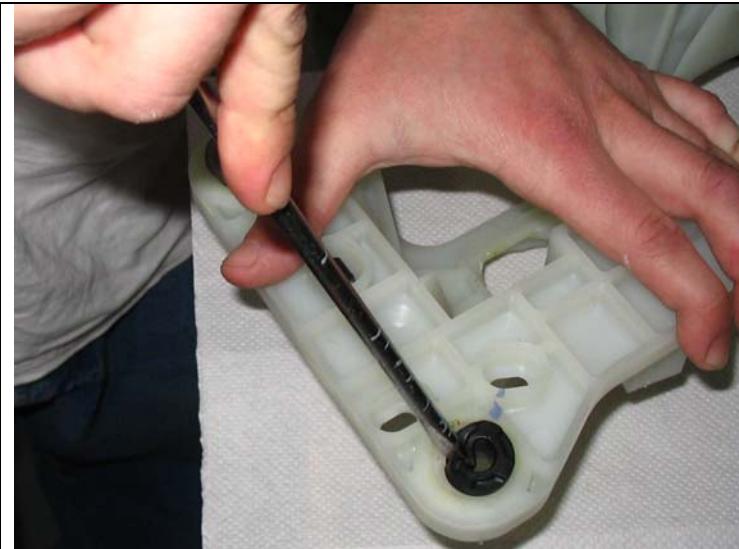


**32. PLEASE NOTE:** The following steps are only required if you have purchased the optional shift assembly bushings with your TWM short shifter. If you do not have the base bushings, proceed to step 35.

Remove the four steel inserts at each corner from the bottom of the shift assembly with a flat head screwdriver.



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**33.** Remove the rubber bushings from the base of the assembly by pushing them through the assembly with a flat head screwdriver or with your fingers.



**34.** Re-install the modified shift assembly in the car with the TWM base bushings. While placing the assembly into the car, be sure to place the shifter cables where they will go, do not re-connect them to the assembly yet. Install the base bushings beneath the shift assembly with the smaller diameter step facing up. This step fits in to the holes in the plastic assembly to replace the rubber bushings you removed in the previous step. Install a bushing at each corner of the shift assembly.



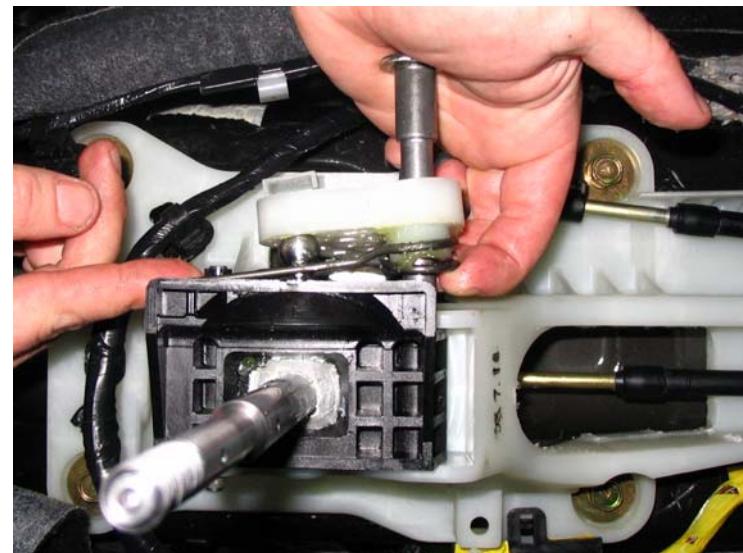
**35.** Secure the shift assembly back in place with the stock bolts and a 12mm socket. Be sure the step on the bushings at each corner of the assembly are in the holes in the assembly properly before tightening it down. Clip the shifter cables back to the assembly and re-connect the wires to the shift assembly with electrical tape if you cut the tape initially. If you did not cut the tape and removed the clips securing the wires, replace the clips now.



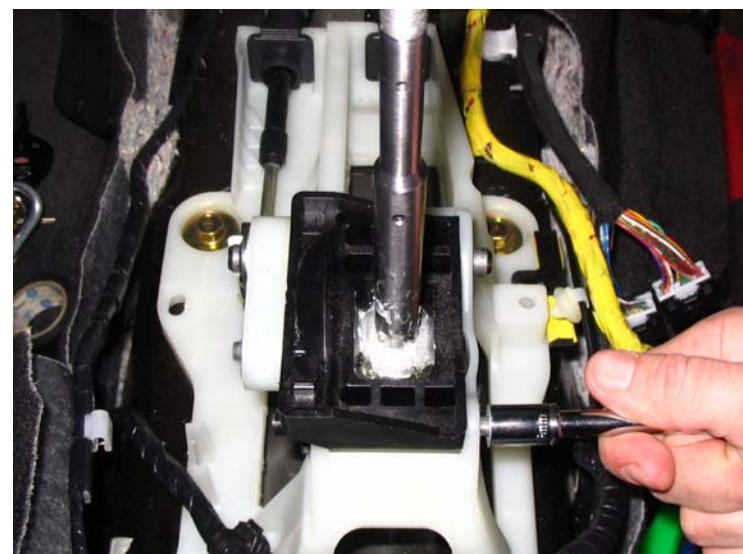
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**36.** With the modified shift assembly bolted in to the car, Install the upper portion of the assembly with the TWM short shifter in place.



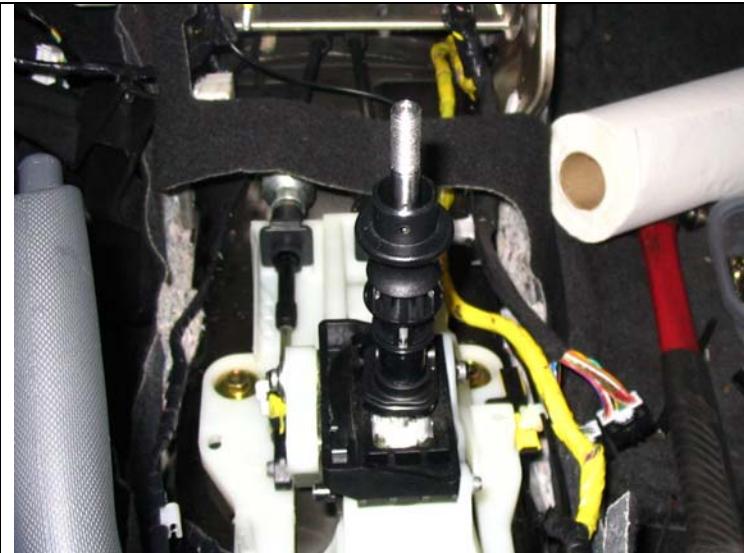
**37.** Re-install the triangular shaped plastic arm and spring which controls side to side resistance. Re-insert both pins that go through the assembly and the upper portion of the assembly taking care to properly re-install the triangular shaped plastic side arm and spring on to the TWM short shifter. Re-connect the shift cable to the triangular shaped arm now.



**38.** Secure the pins in the assembly once they are all the way through with the supplied push clips. Use a 9mm socket to install the 6mm push clip on the smaller pin by driving it on with a ratchet extension. Use a 14mm socket to install the 10mm push clip on the larger front pin by driving it on with a ratchet extension. You should be able to install these clips by hand, make sure they are pushed all the way on to prevent the pins from sliding out over time. It may be necessary to hold the pins from the driver's side to keep them from moving while pushing the clips on from the passenger side.



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**39.** Lightly grease the TWM shifter shaft and slide the reverse lock on to the short shifter. Be sure it's orientation is correct, the small hole you drilled should face the back of the car and the larger pre-existing hole should face the front of the car.



**40.** **Be sure the bottom shifter cable is not connected to the shifter at this point.** Use the spring pin punch tool supplied with the short shifter to begin installation of the supplied 3mm x 24mm lower spring pin through the reverse lock and the shifter shaft. There are 2 spring pins supplied with the kit, you will be installing the longer of the two in this step. In order to do so, insert the spring pin in to the end of the spring pin punch to hold it. This punch is used only to start the spring pin in the hole in the shifter shaft. Line up the lower slot in the reverse lock with the lower hole in the shifter shaft. Ask an assistant to hold the reverse lock in place while you work.



**41.** Line up the spring pin with the hole in the shifter shaft and tap it in gently with a hammer to get it started. Lean the shifter as far forward as it will go in the assembly to stop it from moving as you tap with a hammer. You only need to get the spring pin started with this punch. Once the spring pin is started, tap it in about 1/8th of an inch and stop. Be sure not to drive the pin in far enough to contact the reverse lock with the spring pin punch tool as this may cause damage. Use the supplied long and thin 7/64 inch punch to complete driving in this pin. Drive it in far enough so that it is flush on both the front and rear of the reverse lock.





**42.** Re-install the spring in to the reverse lock.



**43.** Lean the shifter all the way back now, as though it were in 4th gear. **Be sure the lower shifter cable is not connected.** Use the slotted end of the spring compressor tool to compress the spring ensuring that the slot in the tool faces front to back. Using this tool to depress the spring you will be able to see the upper hole in the shifter shaft looking through the larger existing hole on the front of the reverse lock.



**44.** With the spring depressed, insert the spring pin punch tool through the larger pre-existing hole in the reverse lock to start the shorter spring pin supplied with the kit in the upper hole in the shifter shaft. This spring pin serves to hold the spring depressed so it is important to install the spring pin with the spring depressed lower than the hole in the shifter with the slotted spring compression tool. The spring compression tool is designed with a slot wide enough to allow the spring pin punch tool to pass through it. Use the tool to start the spring pin and drive it in with a hammer until the spring pin punch tool nearly touches the shifter shaft and stop.



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**45.** Still holding the spring depressed, finish installing the upper short spring pin with the supplied long and thin 7/64 inch punch and a hammer. It is very important to drive it in so that there is enough clearance on either end of the spring pin to allow the reverse lock to move up and down freely, while still holding the spring in place. The position of the pin can be adjusted with the long and thin punch to ensure smooth operation of the reverse lock.



**46.** With the reverse lock completely re-installed, you can now re-connect the lower shifter cable. Ensure all gears work properly and reverse can be engaged.



**47.** Re-install the center console, re-connect all wires and connectors, and install the shift knob. You are done, enjoy the drive !



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#### Warranty

Installation of some TWM Performance products may or may not void factory warranties. Always keep OEM equipment that has been replaced in case work is required at the dealer or the vehicle is sold.

This warranty covers the original purchasing consumer. This warranty is limited to repair or replacement by TWM Performance of any TWM Performance product that fails because of a defect in materials or workmanship.

Warranty does not cover the following:

- Damage incurred to related vehicle components
- Regular day to day wear on vehicle
- Shipping costs for replacements
- Installation costs and vehicle down time
- Products that have been modified, incorrectly installed or misused.
- Mounting hardware and bearings



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